

No. 7284

IN THE
United States Circuit Court of Appeals
For the Ninth Circuit

THE MAGNAVOX COMPANY (a corporation),
Appellant,

vs.

ERNEST INGOLD, INC. (a corporation),
Appellee.

THE MAGNAVOX COMPANY (a corporation),
Appellant,

vs.

STROMBERG-CARLSON TELEPHONE MANUFACTUR-
ING COMPANY (a corporation), and GARNETT
YOUNG & Co. (a corporation),
Appellee.

BRIEF FOR APPELLEES.

JOHN H. MILLER,

A. W. BOYKEN,

Crocker Building, San Francisco,

Attorneys for Appellees.

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Appellees.

BRIEF FOR APPELLEES.

STATEMENT OF FACTS.

The two cases here involved were consolidated for trial on one record.

Plaintiff in both cases is The Magnavox Company, an Arizona corporation, engaged in making and selling radio apparatus, particularly loud speakers used in broadcasting.

The defendant in the first case is Ernest Ingold, Inc., a California corporation, and, at the commencement of the suit, was selling at San Francisco radio loud speakers purchased from Atwater Kent Manufacturing Company, in Philadelphia, but on January 1, 1933, the Ingold Company retired from the radio business permanently and since then has sold no loud speakers of any kind or any other radio apparatus.

In the bill of complaint the Atwater Kent Mfg. Co. was originally joined as a co-defendant with the Ingold Company; but on motion made it was dismissed from the suit for lack of jurisdiction, being a non-resident and having no agent in California. Thereafter the case was continued against the Ingold Company alone.

Defendants in the second case are Stromberg-Carlson Telephone Manufacturing Company, a New York corporation, and Garnett Young & Company, a California corporation. The former is the manufacturer, and the latter the distributor of the accused device in California. Said device is substantially the same in construction and mode of operation as that of the Atwater Kent Mfg. Co., though differing in some of the details.

Two patents are involved, No. 1,266,988, dated May 21, 1918, and No. 1,448,279, dated March 13, 1923. Both are owned by The Magnavox Company as assignee of the patentees Edwin S. Pridham and Peter L. Jensen.

The first patent has 9 claims, but only claim 8 is relied on as being infringed.

The second patent has 10 claims, but only claim 8 thereof is relied upon.

A third patent is set up in the bill of complaint and charged therein to be infringed—No. 1,579,392, dated April 6, 1926,—but at the commencement of the trial the same was withdrawn by plaintiff's attorneys and is no longer in controversy.

DEFENSES STATED.

The defenses set up in the lower Court were *invalidity* and *non-infringement*.*

The judge of the trial Court did not pass on the question of validity; but held that even if the claims were valid, they were of such narrow scope that the defendants' structure did not infringe and therefore it was unnecessary to pass upon the validity of the patents. (R. pp. 35, 42.)

In this procedure the trial Court adopted the course followed by this Court in *Lektophone Corporation v. The Rola Company*, 34 Fed. (2d) 773. Therefore, the only question we shall argue here is that of non-infringement.

We take up patent No. 1,448,279 first, as that is the more important of the two. Only claim 8 thereof is relied upon.

*Where italics are used herein they may be deemed ours unless otherwise stated.

THERE IS NO INFRINGEMENT OF CLAIM 8 OF
PATENT NO. 1,448,279.

The correct solution of this issue depends upon the construction to be placed upon the claim.

It is settled law that where a claim does not embody a primary invention, but only an improvement over prior structures, the claim is not entitled to a broad construction, but must receive a narrow construction and be limited to the specific details shown.

Quoting from the decision of the Supreme Court in the case of *Cimiotti Unhairing Co. v. American Fur. Ref. Co.*, 198 U. S. 399, 414:

“Where the patent does not embody a primary invention but only an improvement on the prior art and the defendant’s machine can be differentiated, the charge of infringement is not sustained.”

Especially applicable is the decision of this Court in *Hardison v. Brinkman*, 156 Fed. 962, 967, where the opinion was penned by the late Judge Gilbert. And along the same lines is the decision of this Court in *Day v. Doble*, 42 Fed. (2d) 6, where the opinion was by the late Judge Dietrich.

It is our contention that the Pridham and Jensen claim under consideration is such a claim as is referred to in these cases.

In the memorandum decision of the lower Court (see p. 68 of Record) it was said:

“I find it unnecessary to pass upon the validity of the patents, limited as their interpretation must be by the state of the prior art. And after careful study of the patents, the prior art, the

law, and the facts, I have reached the conclusion that there is no infringement of claim 8 of either patent, and so find.”

It is the contention of the appellant that its patents relate to the radio broadcasting art and cover a broad invention in that art, which is of immense value. Hence, a brief reference to that art will be helpful.

PRELIMINARY OBSERVATIONS ON RADIO BROADCASTING.

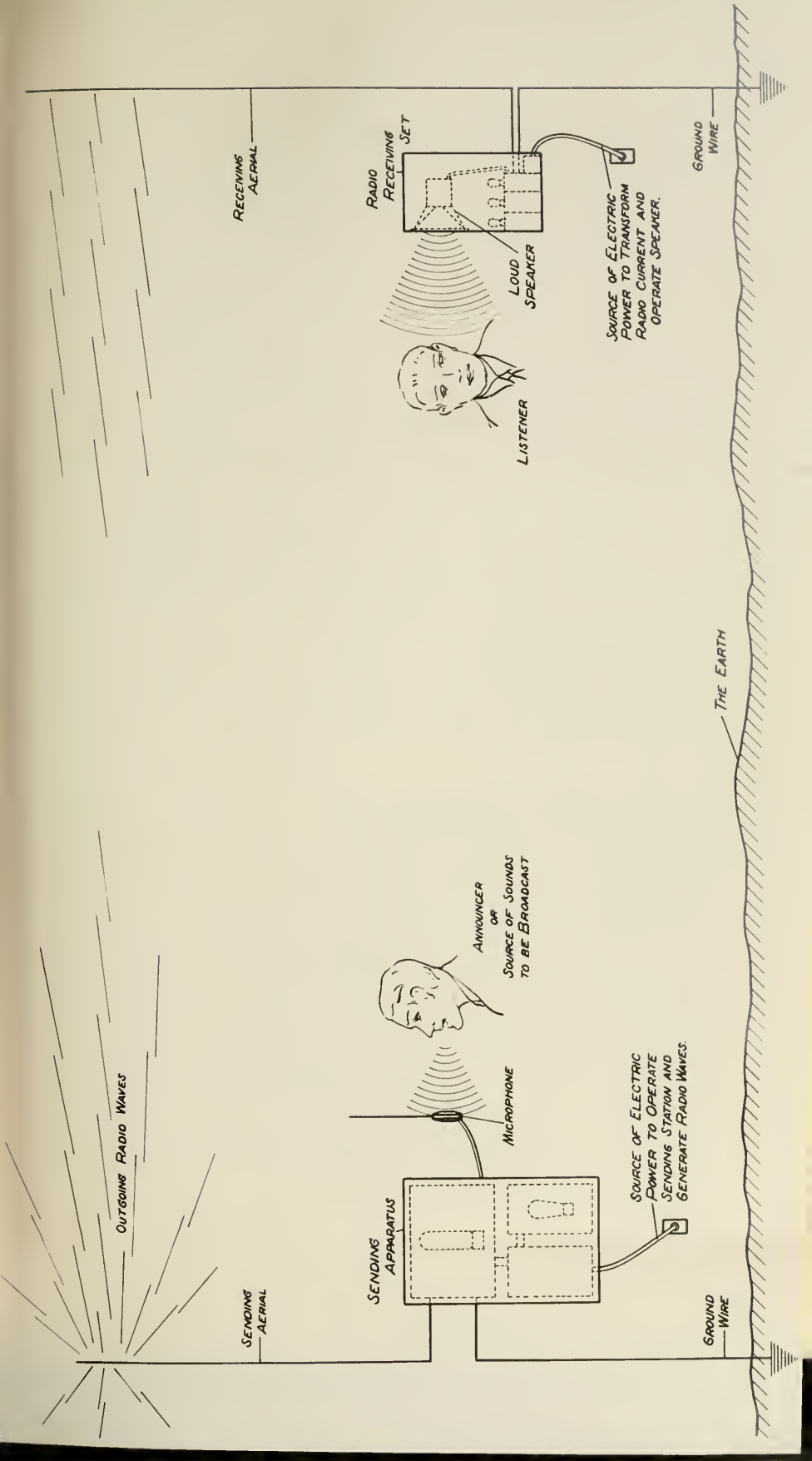
The radio art is now practiced throughout the civilized world. In the beginning it was looked upon merely as an interesting novelty, a scientific toy. Now it is considered to be a necessity of modern civilization. According to Funk & Wagnalls New Standard Encyclopedia (p. 488) there were in 1930 in the United States 617 public broadcasting stations, and 750 outside of the United States. Besides these the number of amateurs engaged in the art is legion. The money invested runs into millions, and the number of employees is untold. In fine, it is one of the fundamental instrumentalities of modern civilization.

Substantially all the receiving stations now use the vibrating free air cone construction. If the contention of The Magnavox Company, as stated by its counsel, is sustained, the result will be to give that company complete dominion over all the vibrating free air cone devices, and, indirectly, dominion over the art as now practiced. This would render liable to injunction and closure practically all the receiving stations in the United States utilizing the free air cone

construction, unless some other method could be devised for receiving radio communications.

Radio broadcasting, generically considered, consists in first generating a high frequency radio carrier wave by the apparatus in a sending station and then modulating the same by the sound waves from a microphone and applying the modulated waves to the antenna of the sending station, from which antenna they are projected into the atmosphere in all directions. When they reach the receiving station they are demodulated and reach the ear of the listener as audible sound.

The process may be roughly illustrated by the diagram on the adjoining page. On the left-hand side is the sending station containing apparatus called a radio "set," comprising vacuum tubes and instruments of delicate construction. Connected with this set is a source of electricity shown in the picture just below the set, which communicates with the apparatus above and generates a high frequency radio carrier wave. The announcer speaks into the microphone, thereby generating sound waves. When these sound waves enter the apparatus, or "set" as it is called, they have the effect of modulating the carrier waves, that is to say, impressing upon them the characteristics of the sound waves. After being amplified many times by the vacuum tubes the modulated waves pass to the aerial antenna shown at the left and are projected into the atmosphere in all directions. When they reach the antenna of the receiving station at the right-hand side, they pass into the receiving "set" there located and are "demodulated," that is to say the sound waves are uncoupled from the carrier waves



OUTGOING RADIO WAVES

SENDING AERIAL

SENDING APPARATUS

RADIO RECEIVING SET

RECEIVING AERIAL

ANNOUNCER OR SOURCE OF SOUNDS TO BE BROADCAST

MICROPHONE

LOUD SPEAKER

LISTENER

SOURCE OF ELECTRIC POWER TO OPERATE SENDING STATION AND GENERATE RADIO WAVES.

SOURCE OF ELECTRIC POWER TO TRANSFORM RADIO CURRENT AND OPERATE SPEAKER.

GROUND WIRE

GROUND WIRE

THE EARTH



and we then have sound waves of the same characteristics as the original sound waves we started with. By suitable transforming apparatus they are made to vibrate the loud speaker located adjoining and thereby the same sounds are reproduced which were spoken into the microphone of the sending station.

The reason for using this carrier wave is its terrific speed. It travels at the rate of 186,000 miles per second, whereas sound travels at the rate of only 1100 feet per second. The carrier wave acts merely as a conveyance or carrier for the sound waves.

The whole proceeding is quite complex and the instrumentalities employed are exceedingly delicate and involve some abstruse principles of electricity.

No such thing is found in or can be spelled out of the Magnavox patents. There is not the slightest intimation or suggestion of any such thing, much less any disclosure thereof.

This omission is not surprising, because radio broadcasting did not come into vogue until after the applications for the patents in suit were filed. That art began tentatively in an experimental way in the latter part of 1921, and became fully established in 1922, whereas the Pridham and Jensen patents were applied for on July 3, 1916, and April 28, 1920, respectively. Therefore, Pridham and Jensen could not have had radio broadcasting in view.

Let us enquire then what is the art to which this Pridham and Jensen patent is addressed.

GENERAL CONSIDERATION OF PATENT NO. 1,448,279.

We take up the second patent first, as it is the more important of the two, and postpone consideration of the first patent until later.

This patent (1,448,279) relates to telephones, pure and simple, such as were in use at the time of and prior to the Pridham and Jensen invention; that is to say, the conventional telephone of commerce operating on a *wire circuit*. This is apparent from the face of the patent, in which Fig. 5 shows the usual telephone *wire circuit*, and this wire circuit is specifically described on page 2, lines 87 to 95, of the specification.

There is not the remotest hint or intimation that the invention was intended to be, or could be, used in a *wireless* or radio circuit.

In their specification the patentees say (p. 1, line 9 et seq.):

“This invention relates to *telephones* and more specifically to improvements in the moving coil type of telephone receivers. The receiving instrument which is the subject of this specification comprises an annular coil rigidly connected to the diaphragm. This coil is disposed, so as to be freely movable, in a strong concentric magnetic field produced either by a permanent or an electromagnet. The magnetic field is so arranged that the lines of force cut the annular coil at all points in the same direction. This is accomplished by having one of the poles of the magnet within the coil and the other completely surrounding it.”

The specification says, at page 1, line 39, et seq.

“Fig. 5 is a diagram showing the electrical connections for the receiver.”

Those electrical connections are the usual standard telephone connections, on a wire circuit.

On page 2, lines 87-95, the following description is found:

“The electrical connections for the receiver are shown in Fig. 5 and include an operating circuit 18 for the magnetizing coil 16. A transmitter 19 having an operating circuit 20 is also shown. Included in this operating circuit is the primary of an induction coil 21, the secondary of which is connected electrically with the vibrating coil 5.”

Nowhere in the specification do we find the words wireless, or radio, or loud speaker, or broadcasting, or any reference thereto, or any term or word relating specifically to radio broadcasting.

The invention is the ordinary telephone supplied with an electro-dynamic drive for the purpose of obtaining greater power and producing a louder sound, to the end that it may be heard over a wider area. In fine, it is a loud-sounding telephone. That is its sole object, so far as appears from the specification. In that respect it is in the same class as the telephone of Sir Oliver Lodge (of 1898) which was so loud sounding that in the provisional specification of his British patent he calls it “a bellowing telephone.” In that respect he says in his provisional specification, page 2, lines 2, 3, 4:

“I call it a bellowing telephone because a gentle tone at one end of the series becomes a shout at the other end.”

Judge Thatcher so terms it in the case of *Lekto-phone v. Western Electric*, 20 Fed. (2d) 151.

The Pridham and Jensen invention is such a "bellowing telephone," and if there be any difference it resides in the fact that Pridham and Jensen can "bellow" louder than Sir Oliver. The name Magnavox, *big voice*, is well chosen.

The use to which Pridham and Jensen put their telephone, prior to the time when they entered the radio field, is proof of our contention. The evidence shows that the device was at first used as a loud-sounding telephone over a wire circuit.

On referring to the numerous photographs and news clippings put in evidence by plaintiff to show the widespread use of the invention and its alleged acceptance by the public, it is to be noted that the instruments depicted are merely public address devices or annunciators used with horns.

Mr. Pridham described the operation of those devices in detail at pages 352-3-4 of the Record, saying that he used a microphone transmitter like an ordinary telephone and a loud speaker located a little distance away and connected to them by telephone wires. On page 353 he described the device being used by President Harding (Pliff's. Ex. 9, picture No. 1), saying:

"He talked through the microphone and that passed the sounds over the telephone wires to the horn, and the sounds were emitted from the horn. In all those pictures that is the same procedure."

This is the ordinary public address or annunciator system, such as was practiced prior to 1915 in railroad stations, hotels, and baseball parks.

Farrand testifies to the use of such a device in the waiting-room of the Grand Central Station in New York City for train annunciation prior to 1915. (R. p. 237.)

Dechow gave similar testimony and produced one of the devices as used in the White Sox Baseball Park at Chicago prior to 1915. (Marked Deft's. Ex. 38.)

It is such an announcing device as is used today at the major baseball parks during the progress of ball games for announcing the individual plays. It is also the device used on the public streets of large cities by peddlers and such like for advertising their wares from vehicles. In fact, the first one sold by Magnavox was sold to a magician called "Alexander the Great." (See testimony of Pridham, R. p. 347.) He undoubtedly used it as an announcing device, after the manner of magicians in general.

**ANALYSIS OF CLAIM 8 OF PATENT NO. 1,448,279
AS TO INFRINGEMENT.**

This claim calls for an electro-dynamic receiver for telephones comprising the following elements:

1. A shell or casing having bottom and side walls made of magnetizable material (e. g. iron).
2. A magnetizing coil within said casing. (This means the magnet winding.)
3. A core for the coil,
 - (a) extending from the bottom of the casing to the top thereof and
 - (b) *formed at its upper end with an inner pole piece.*

4. An outer pole piece in the form of a flat plate,
 - (a) arranged upon the casing and having
 - (b) a central opening surrounding the inner pole piece
 - (c) and spaced evenly therefrom.
5. Means within the casing for retaining said pole pieces in spaced relation (e. g. a spacing ring).
6. *A sound box,*
 - (a) *carried by the casing,*
 - (b) *said sound box including a diaphragm.*
7. A movable coil (i. e. voice coil),
 - (a) rigidly connected to the diaphragm
 - (b) and arranged within the space between the two pole pieces.

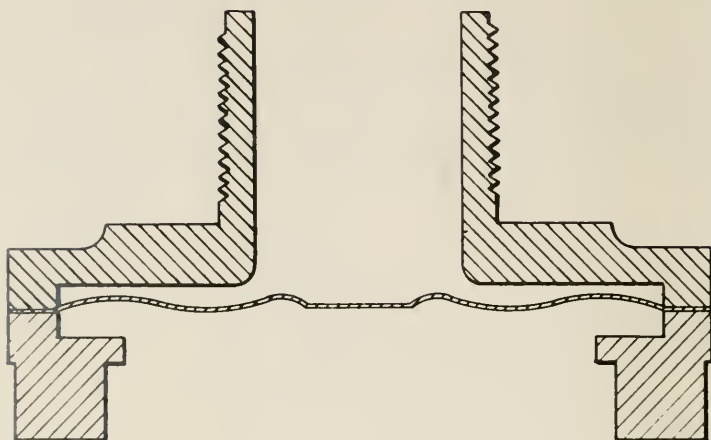
There are two elements in this claim which are not found in the appellees' structure. One such element is specified as:

“a sound box carried by the casing, said sound box including a diaphragm.”

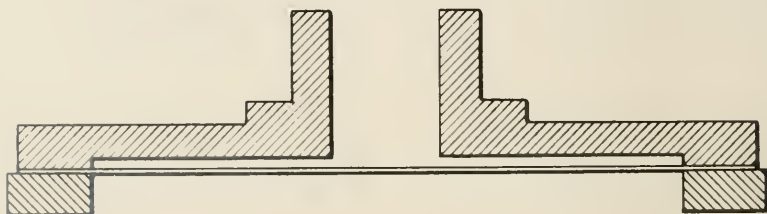
The second is

“a core for the coil (i. e. the magnet coil) extending from the bottom of the casing to the top thereof *and formed at its upper end with an inner pole piece.*”

SOUND BOX OF FIG. 2
PATENT NO. 1,448,279.



SOUND BOX OF FIG. 4
PATENT NO. 1,448,279.



SOUND BOX AND DIAPHRAGM.

It will be noted that the sound box is described as "including a diaphragm." This means that the diaphragm is contained in the sound box as a part thereof. In fact, it forms the bottom of the box. The rest of the box consists of a top with a small hole in it for insertion either of a horn or ear tubes, and a surrounding cylindrical wall. The diaphragm, which forms the bottom of the box, is a thin circular metallic plate rigidly attached at the periphery between clamping rings or blocks. In Fig. 4 this diaphragm is shown as having a smooth face, while in Fig. 2 it is shown as corrugated.

The two cuts on adjoining page show the two forms. They are taken from Figs. 2 and 4 of the patent drawings, omitting all parts except sound box and diaphragm.

Attached to the center of the diaphragm, on its under side, is a voice coil consisting of fine wire wound on a spool and vibrating in an annular air gap. When the voice coil functions, the diaphragm vibrates from the center towards the circumference. In this construction, vibrations of the diaphragm propagate sound waves within the sound box, and, by reason of the small confined area within the box and the irregular contour thereof those sound waves become highly compressed and distorted, in which form they do not faithfully reproduce the original sound waves impinging against the diaphragm. That distortion must be corrected and the distorted waves brought back to their original form before they become faithful reproductions. There is no means disclosed in the

patent for doing that, but in the actual use of the Pridham and Jensen device a large, flaring-mouthed horn is attached in the opening at the top of the box, through which opening the distorted sound waves pass. When they pass through the horn and are discharged from the flared end thereof into free air, the distortion is corrected by the release of pressure and they then become faithful reproductions of the originals. A horn or other amplifier is necessary for this purpose. Without it the device depicted in the patent is without utility. A horn is not shown in the patent, but in actual practice appellant uses a horn.

The appellees have discarded the sound box and its enclosed diaphragm, and use a cone made of stiff paper or analogous material. The cone is cut off transversely at its apex and provided with an extension or hub, around which fine wire is wound to constitute a voice coil. To the large end of the cone is attached a flexible rim, made of cloth or other similar material, and this is attached to and supported by a rigid frame or spider. By this construction the cone is flexibly mounted and vibrates as a whole like a piston.

In *Lektophone Co. v. Western Electric Co.*, 16 Fed. (2d) 12, Judge Manton called the bodily motion of such a cone a "plunger action."

The piston-like vibrations of the cone propagate sound waves in the free air space within the cone, which sound waves are self-sustaining and perfectly formed *ab initio*, and, therefore, do not need any rectification. They are analogous to the sound waves produced by a gong in free air. In fine, they are self-

sustaining sound waves propagated initially in free air as distinguished from compressed and distorted sound waves propagated in a closed chamber and subsequently conveyed out of the chamber by a horn and rectified. This latter operation is roughly analogous to the compression of a piece of soft rubber and its subsequent expansion on release of the pressure.

The Hopkins Patent No. 1,271,529, applied for in 1913 and issued in 1918, appears to be the first in the art to show a paper cone flexibly suspended from a rigid frame. That was so adjudged by the 3d Circuit Court of Appeals (Buffington, Woolley and Davis, Circuit Judges) in the case of *Lektophone Corporation v. Brandes Products Corporation*, 20 Fed. (2d) 156, where it was said:

“To our minds, Hopkins was the first to make the combination of a conical shaped paper device of proper size, provided with flexible edges coupled to a rigid frame used in free air.”

This fundamental distinction between these two methods is well established in the art. Thus, in the Hopkins patent, 1,271,529, applied for in 1913 and issued in 1918, it is stated on page 1, lines 12-26:

“This invention relates to instruments which reproduce sounds; and is particularly directed to the attainment of a *direct propagation, in free air*, from a record or equivalent element subjected to the action of the original sound waves or vibrations, of *self-sustaining sound waves substantially corresponding in intensity and amplitude, as well as in pitch or timbre, to the said original sound waves*, as distinguished from an *initial generation of violent air disturbances in a confined*

space, and a subsequent transformation of such disturbances into self-sustaining sound waves by means of a megaphone, horn, or other amplifier."

And on page 1, at lines 86-94, in describing the essential characteristics of the cone, which he calls a "tympanum," Hopkins says:

"* * * the latter" (meaning the tympanum) "excites directly in the free air surrounding it, sound waves of an intensity and amplitude substantially corresponding to the original sound waves. *In other words, the original sounds are directly regenerated by the vibrating tympanum without the interposition of a restrictive or sound modifying transformer."*

In his specification he states that in the sound box method the sound waves in the box become distorted by reason of their compression in a restricted area, and that the object of his invention is to produce sound waves in free air "without interposition of a confined body of air and without the employment of a restrictive transformer, such as a horn." (p. 1, lines 70-73.)

Judge Thatcher said in *Lektophone v. Western Electric*, 20 Fed. (2d) 151:

"Hopkins discarded the sound box and horn and successfully developed a sounding board directly radiating sound waves in unconfined air."

This distinction was pointed out by the Supreme Court in the case of *Lektophone Corporation v. Rola Co.*, 282 U. S. 168, affirming the decision of this Court in 34 Fed. (2d) 764.

These cases conclusively hold that the methods of producing sound waves through the instrumentality of a free air cone on the one hand and a sound box and diaphragm on the other are radically different things and consequently they are not equivalents.

MECHANICAL EQUIVALENTS.

The contention of appellant is that the appellees' open-topped, truncated paper cone and the rigid open frame or spider to which it is loosely attached by a flexible joint, are the mechanical equivalents of the sound box and diaphragm shown in the Pridham and Jensen patent. That is to say, the frame or spider is the sound box and the cone is the diaphragm. This contention cannot be sustained.

For two things to be equivalents, they must both accomplish the same result in substantially the same manner or mode of operation and by substantially the same mechanical means. There must be substantial identity of *means*, identity of *operation* and identity of *result*.

The sound box of the patent is a truly *box-like* structure having a top and bottom and surrounding circular wall, while the device of the appellees, which is said to be the equivalent of this sound box, is nothing more than an open frame or spider to which the cone is attached by a flexible rim at the bottom—in fine, a support for loosely hanging a vibrating cone thereon.

A peg in a wall for hanging hats on is not the equivalent of a hat box.

In the case of *Hardison v. Brinkman*, 156 Fed. 967, the Court of Appeals of this Circuit, through Judge Gilbert, said:

“A mechanical equivalent which may be substituted for an omitted mechanical element in a combination claim is one that *performs the same function* by applying the *same force* to the same object through the *same means and mode of application.*”

In the instant case the sound box method accomplishes the result of producing *imperfect, compressed and distorted sound waves* in a restricted chamber or “box,” which waves are of no value unless they are subsequently rectified; whereas the vibrating cone accomplishes the result of producing *initial self-sustaining sound waves in free air*, which need no rectifying and are of great value. These two results are not the same, but wholly different.

Also the method of accomplishing the result is different in each case. In the sound box construction the method is to *vibrate a stationary, circular metal diaphragm from center to circumference, with the circumference rigidly attached between two rings*; whereas in the vibrating cone structure the method is to vibrate the cone *as a whole* like a piston, and with the outer end of the cone having a flexible joint to admit of the piston movement.

Of course, the mechanical structures of the two devices are radically different. The diaphragm of the

patent is a circular, metal plate rigidly fastened at its periphery between two rings vibrating from center to circumference, while the so-called diaphragm of the vibrating cone construction is a truncated cone made of paper or like material, being cut off transversely at its upper end and provided with a flexible rim at the lower end, connecting with a rigid frame or spider, and vibrating as a whole.

In *Lektophone Corporation v. Rola*, 282 U. S. 168, the Supreme Court held that a free air cone "is distinguished from the then prevailing use of a sound box and horn," and that the contribution of Hopkins comprised "abandoning the sound box." Since appellees use such a free air cone as is there referred to, the case is authority for our contention that appellees' cone is a different thing from the sound box and horn of Pridham and Jensen.

There is no identity of *means*, no identity of *operation*, no identity of *result*. Hence there can be no equivalency.

ORAL EVIDENCE IN RE SOUND BOX.

But irrespective of the foregoing considerations, what is the oral evidence on this subject? Dr. Paul E. Sabine, of Geneva, Illinois, an acoustical expert, gave a deposition for defendant in the Hart & Reno case (No. 2534), tried contemporaneously with the case at bar, and a copy of such deposition was stipulated herein. Beginning on page 191 of the Record he testified as follows:

“My training and experience tending to qualify me to explain to the Court acoustical devices and their operation, is this: I am a graduate of Harvard University. I have taken my Doctor’s degree in physics. I was for two years assistant professor in physics at the Case School of Applied Science. For the last 12 years I have been director of acoustical research at the River Bank Laboratories. I am a member of the American Physics Society and the Acoustical Society of America. I have devoted 12 years to research on problems in sound. I am the author of numerous technical papers on acoustical questions and have had 12 years’ experience as a consultant.

I have read Pridham and Jensen patents Nos. 1,448,279 and 1,579,392, the patents in suit. I understand the construction and operation of the electrodynamic receivers illustrated and described in said patents. (The term ‘sound box’ is used in the said two patents.) That term is well known in the acoustical art.

The term ‘sound box’ arose in connection with the development of the phonograph and as employed in the phonograph art it refers to a small cylindrical box, one side of which is the diaphragm or other moving vibrating member, the other side being closed except for an opening usually terminating with a tubular extension to which the horn of the phonograph is attached. This nomenclature has subsequently in the development of loud speakers come to be used quite generally with a similar meaning except in the loud speaker the diaphragm is operated, not by a needle as in the phonograph, but by the electrical currents which are supplied to the loud speaker.”

The witness was asked if he could cite any books of reference as authority in support of his definition of a sound box. He answered "yes" and gave the following (R. pp. 192-3-4):

- The International Encyclopedia, 1918 Edition, in the article on phonographs;
- Dayton C. Miller's Science of Musical Sounds, published in 1916;
- Encyclopedia Britannica, in an article on gram-aphones;
- Article by C. R. Hanna, in the Journal of the Acoustical Society of America, October, 1930;
- Article by Maxfield and Harrison, in the Bell System Technical Journal for July, 1926;
- Journal of American Institute of Electrical Engineers, 1924, by Hanna and Slepian.

On page 194 he gave the following testimony as to the operation of a sound box:

"Q. 10. How does a sound box operate acoustically?"

A. The sound box is a small almost wholly enclosed chamber. As I have stated, one side of it is connected with the member which produces vibrations of the diaphragm. One side of it is the diaphragm. And the movements of the diaphragm back and forth alternately contract and expand the volume of this chamber and the enclosed air and these volume changes are accompanied by pressure changes in the enclosed air. The smaller the volume of the box the greater will be the pressure change for a given displacement of the diaphragm.

Q. 11. When a horn is used in connection with the sound box what is the resulting acoustical operation?

A. The large pressure changes in the sound box would not necessarily result in any considerable volume of sound. In order to utilize these large pressure changes as sound a considerable volume of air has to be set into vibration and the air cavity or the air enclosed in the sound box which is subjected to these large pressure changes connects directly through the throat of the horn with a larger volume of air with an expanding cross-section as the horn expands and these large pressure changes operate directly on the air enclosed in the horn to produce vibrations in that column of air. This column of air may be vibrated as a whole, in which case the horn is emitting its fundamental tone, or it may vibrate in parts. As the diaphragm advances, decreasing the volume of the air enclosed in the sound box, it sets up a pulse of condensation in the air and the air is forced out under pressure into the horn. This movement is transferred through the expanding section of the horn and is finally radiated from the mouth of the horn as sound over a large area. In other words, the combination of sound box and horn act as a means of acoustically coupling the stiff, rather small, dense diaphragm, with a large volume of much lighter and much less dense air at the mouth of the horn. The combination serves as a means of acoustically coupling and corresponds to the impedance matching in electrical circuits where you want to transfer energy of oscillating current from one part of that circuit to another most efficiently. The sound box and horn increase the efficiency of the diaphragm as a sound producer.

In the said Pridham and Jensen patents the term 'sound box' is used in the sense in which I

have just defined it and I think it is properly used.

Q. 13. Mr. Edwin S. Pridham, one of the joint patentees of the two patents in suit, in his deposition in this case stated on page 15 that in the case of loud speakers the term 'sound box' 'can be used as a supporting medium or enclosure to support the diaphragm. There are many definitions of the word "sound box." It is not restricted to any particular or definite type of apparatus.' Do you agree with the said statements of Mr. Pridham?

A. I do not agree with Mr. Pridham on that in the light of the quotations which I have already made or the authorities which I have already cited.

The term 'sound box' does refer specifically to an enclosure and, moreover, engineers recognize the fact that this enclosure does form and the size of the opening does play an important acoustical function in the operation of the loud speaker device. So that any frame that holds the diaphragm cannot be properly spoken of as a sound box unless it fulfills the functions which I have already indicated as the function of the sound box. I think the current literature bears that out, as well as the literature of the phonograph art in general." (R. pp. 195-6.)

DEPOSITION OF CLAIR L. FARRAND.

Mr. Clair L. Farrand, of New York, president of the United Research Corporation, a company engaged in electrical and acoustical work, gave a deposition for defendant in the Hart & Reno case, and a copy of

same was stipulated into the case at bar. (R. p. 231 et seq.) He secured a British patent, No. 178,862 (Deft's. Ex. EE) and later a U. S. patent No. 1,847,935, dated March 1, 1932, but applied for April 23, 1921. He gave testimony as follows:

“In 1921 I manufactured a so-called Phonetron loudspeaker. This was a moving coil-driven cone type loudspeaker and was sold in moderate quantities for radio amateur uses, as this was prior to the days of the broadcasting reception. I am the patentee of British patent No. 178,862 granted to Clair Loring Farrand.” (R. p. 232.)

“* * * The structure shown in this patent is practically identical with the structure marketed by me in 1921. The only difference I see is in the method of fastening the spider support of the cone to the central magnetic pot. The term used to describe this type of speaker is the word ‘dynamic.’ It is an abbreviation of the technical term electro-dynamic.” (R. p. 233.)

“A dynamic speaker, as I understand, comprises a conical diaphragm of rather large size, acting directly upon unconfined air and made of light material, supported at its outer edge with a flexible support in an opening in some supporting structure.

Mounted on the center of the conical diaphragm is a voice coil, which floats in a long annular gap, wherein there is a unidirectional magnetic field produced by a field winding which in turn is energized from a separate source. The voice coil is energized by the audio voice frequency currents received from the associated amplifier tubes. The diaphragm is generally supported in a baffle, which may conveniently be an opening in one wall of a radio cabinet.

I have examined Plff's. Ex. C, which is a photostat showing the cross section of the Stewart-Warner loudspeaker complained of in the present suit, and understand the construction as shown in the drawing.

I am generally familiar with the horn type loudspeakers of the sound box and diaphragm type which were on the market for many years. The General Electric Company, Radio Corporation and Westinghouse Companies marketed speakers of that type for radio broadcast reception but they are not being marketed now. The reason they are not being marketed is that it is possible to obtain a superior musical reproduction with the dynamic type loudspeaker.

I am familiar with the differences in construction and principle of operation of the dynamic cone type loudspeaker and the sound box diaphragm and the horn type of loudspeaker. The differences are these:

The sound box and horn type loud speaker comprises an actuating motor element generally fastened to a small flat diaphragm which forms one wall of an enclosed chamber called a sound box. The opposite wall of this chamber has a small opening, to which is fastened the throat of a horn. The walls of the horn taper outwardly to a bell-like opening, the size of which is dependent upon the lowest tone it is desired to reproduce. The action of this device is that the diaphragm, moving small distances, compresses the air in the chamber of the sound box to a very high degree of compression. This high compression wave is applied to the throat of the horn and expands outward toward the bell-like opening, and as it expands outwardly its pressure is reduced, due to the increasing area, until when

it arrives at the opening of the horn it is a relatively low pressure air wave.

On the other hand, the dynamic type loud speaker does not employ the horn. The conical diaphragm operates directly on the air at approximately the same pressure as is arrived at at the bell opening of the horn in the case of the sound box-horn combination." (R. pp. 234-5.)

He was then asked if the Stewart-Warner device shown in Exhibit C contains a sound box and diaphragm in the sound box. (This testimony was given in the suit of *Magnavox v. Hart & Reno*, and the Stewart-Warner speaker referred to is of the same construction and mode of operation as the appellees' speaker in the present case.) His answer thereto was as follows:

"A. The speaker of Plaintiff's Exhibit C does not contain a sound box. It does have a conical diaphragm, and from its design is for use directly upon unconfined air without the use of a horn. Sound boxes generally are used with horns." (R. p. 236.)

As the appellees' speakers are substantially of the same construction and mode of operation as the Stewart-Warner (Exhibit C), this testimony is applicable and as such has been stipulated into the case at bar.

In opposition to this, plaintiff produced as witnesses Edwin S. Pridham and Herbert E. Metcalf. Neither of them is a disinterested witness. Mr. Pridham is the head and front of The Magnavox Com-

pany, its chief owner and stockholder. Mr. Metcalf was for eight years an employee and stockholder of The Magnavox Company and his testimony is not free from bias.

Under these circumstances, the testimony of Pridham and Metcalf must be viewed with caution, and cannot prevail over that of Dr. Sabine and Mr. Farrand, both disinterested witnesses.

KELLOGG PATENT NO. 1,707,617.

This patent was applied for on January 9, 1925, and issued on April 2, 1929, to General Electric Co., as assignee of Kellogg. A full description of the device is also found in an article published by the Journal of the American Institute of Electrical Engineers, September, 1925, entitled "Notes on the Development of a New Type of Hornless Loud Speaker." (Deft's. Ex. CC.) It is an interesting history of the development of the present day loud speaker and we bespeak a careful reading thereof.

In our little Blue Book is a reproduction of Fig. 1 of the Kellogg patent having certain parts colored. Appellees' loud speaker is in substance the same thing. Claim 1 of this Kellogg patent reads as follows:

"In an apparatus for sound reproduction, a diaphragm having the form of a truncated cone which is open at its top and which is so supported that it is adapted to vibrate substantially as a whole, and means for actuating said diaphragm comprising a coil surrounding the top thereof."

This claim is fundamental and generic. It covers all the modern cone type speakers now in use in the United States, including the present Magnavox commercial loud speaker. It dominates the modern art of conical loud speakers.

Two conclusions follow from the issuance of this Kellogg patent:

First, it negatives the theory that a flexibly supported free air cone is the equivalent of a sound box rigid-diaphragm construction.

Second, it raises a presumption of non-infringement on Pridham and Jensen.

As to the first proposition, the primary purpose for which we use the Kellogg patent is to show that the Kellogg construction, which is also our construction, *is a radically different thing* from the Pridham and Jensen construction, and *ex proprio vigore* not a mechanical equivalent. It is an independent creation, so ruled by the Patent Office and claimed in the most generic language. It is so radically different from the Pridham and Jensen device in construction, and mode of operation, that it appears to us as a travesty on logic to contend that it is the same thing as the Pridham and Jensen device. Two different things cannot be the same thing.

As to the second proposition announced, viz.: presumption of non-infringement, the law on this subject is settled in this circuit by decisions of the Supreme Court and of this Circuit Court of Appeals for the Ninth Circuit.

In *Boyd v. Janesville Tool Co.*, 158 U. S. 261, Mr. Justice Strong, quoting from another case, states the law as follows:

“The grant of the letters patent” (the subsequent one) “was virtually a decision of the Patent Office that there is a substantial difference between the inventions. It raises the presumption that according to the claims of the later patentees, this invention is not an infringement of the earlier patent.”

This rule of law was recognized by this Court in *Western v. Layne*, 276 Fed. 472, and became firmly established in this circuit by the case of *Weaver v. American Chain Co.*, 9 Fed. (2d) 372, where the decision of the Court was announced by Judge Morrow in the syllabus as follows:

“Action of Patent Office in allowing patent is in effect ruling that it does not infringe prior patent, and is entitled to great consideration in suit for infringement.”

That decision is the latest pronouncement on the subject by this Court. Therefore, it settles the law on the point in this circuit.



**APPELLANT ESTOPPED BY ITS OWN ACTS FROM CLAIMING
THE VIBRATING CONE TO BE THE MECHANICAL
EQUIVALENT OF THE SOUND BOX HORN CONSTRUCTION.**

Up to 1927-8 appellant was marketing as its commercial device the sound box diaphragm construction shown in the Pridham and Jensen patent No. 1,448,279, but at that time discontinued the same and

adopted the Kellogg construction of vibrating free air cone, which was then universally used by practically all manufacturers of radio loud speakers. Since that time the cone construction has been and is now being used by appellant, and according to Pridham a million of them have been sold by appellant. (R. p. 351.) In and by its present commercial loud speaker, appellant practically copied the vibrating cone which was designed by Kellogg and put on the market as early as 1925, and which is fully described and claimed in the Kellogg patent.

Under such circumstances, an estoppel arises. Actions speak louder than words, and the actions of appellant in this regard belie its words. Abandonment of the sound box horn construction and adoption of the Kellogg vibrating cone construction is practically an admission that the latter is not the same thing as the former. Our precise point is that Kellogg's vibrating cone is a wholly different thing from Pridham and Jensen's sound box diaphragm construction and hence there is no infringement.

Greaves Interference.

But this is not all. On March 6, 1928, Magnavox Co., through one of its employees, Valentine Ford Greaves, and by its present attorneys, filed an application in the Patent Office for a patent on the identical device shown and claimed in the Kellogg patent, and that application was assigned to and prosecuted by Magnavox. An interference was promptly declared between the Greaves application and the Kellogg patent.

The facts of this interference appear in the Interference Record, Defendants' Exhibit GG.

When the interference came on for hearing in the Patent Office upon a motion by Kellogg to dissolve the same on the ground that the subject-matter was fully described in an article published in September, 1925, by Kellogg and another, entitled "Notes on Development of a New Type of Hornless Loud Speaker" (Deft's. Ex. CC), neither Greaves nor anyone on behalf of Magnavox appeared at the hearing, but defaulted and abandoned the entire field to Kellogg. Thereupon the Examiner of Interferences dissolved the interference on the ground that the Kellogg publication of 1925 disclosed the invention more than two years prior to the Greaves application, and hence was a statutory bar against Greaves.

These facts fortify our contention made *supra* that the vibrating cone construction is a different thing from the Pridham and Jensen sound box, diaphragm construction, and hence that there is no infringement.

There is still another reason why it must be held that the free air cone is not the same thing as the sound box.

In *Lektophone v. Rola*, 34 F. (2d) 764-766, this Court said:

"That which infringes, if later, would anticipate, if earlier."

Applying this rule, if the vibrating free air cone of appellees, which is substantially the same vibrating free air cone of Kellogg, be an infringement, as urged by appellant, then the Pridham and Jensen patent

would be invalid for anticipation, because that free air cone was an earlier device. We see no escape from this conclusion.

DETACHABLE INNER POLE PIECE.

Claim 8 of patent 1,448,279 also specifies as an element:

“* * * a core for the coil” (that is the magnet coil) “extending from the bottom of the casing to the top thereof *and formed at its upper end with an inner pole piece.*”

On referring to the drawings and specification of the patent, it will be seen that this inner pole piece is separate and detachable from the magnet coil. Figs. 2 and 3 of the patent are reproduced on the adjoining page, where the detachable inner pole piece is colored orange. This detachable pole piece is designated in the drawings by the numeral 12, and is formed by boring out the upper end of the iron core 17 (colored blue) of the magnet, so as to form a cavity or pocket, and then inserting therein the stub or short piece of iron 12, which is the inner pole piece called for by the claim. The specification says (p. 1, lines 36-8):

“The iron core 17 of the magnet coil 16 is bored out to form a seat for the pole piece 12 so as to make a good magnetic contact.”

It will be seen that this inner pole piece of the claim is a separate and independent element, detachable from the iron core of the magnet. It is held in place by the spacing ring 11 and by being attached

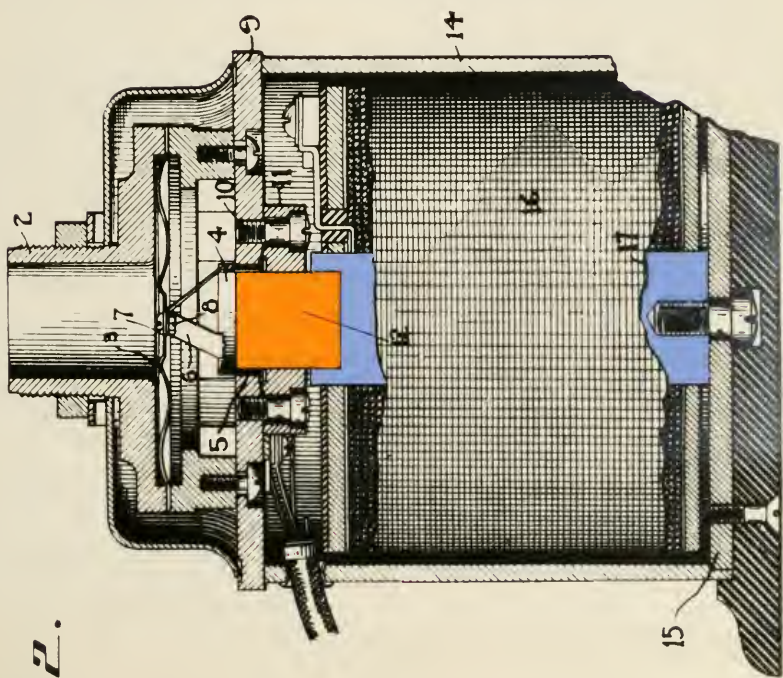


Fig. 2.

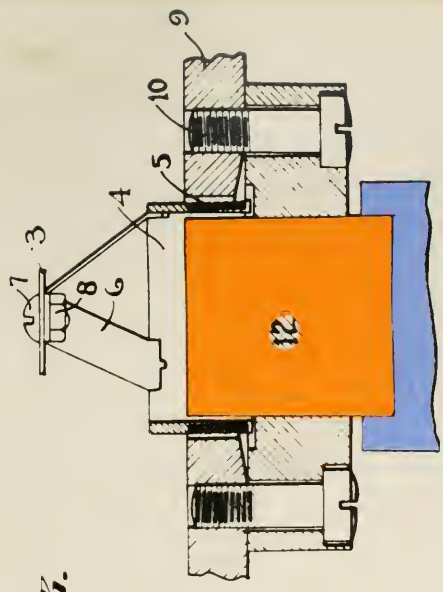


Fig. 3.



to the receiver head, so that it will go with the receiver head when the receiver head is disassembled from the magnetizing structure. It is not integral with the magnetizing structure, but is a part and parcel of the receiver head.

This construction is of the essence of the invention, so far as claim 8 is concerned.

One fundamental idea of the patent, as gathered from the specification and drawings, is that it consists of two separate units, called respectively (1) *a receiver head* and (2) *a magnetizing structure*, made separately but intended to be superimposed the one upon the other, or removed the one from the other at will. One unit may be made in New York, and the other in San Francisco, and then the two may be assembled in Chicago or anywhere else. This idea runs all through the specification.

On page 1, line 58 et seq., of the specification, it is said:

“The pole piece 12 is of substantially the same diameter as the inside diameter of the spacing ring 11. The pole piece is held securely in position in the spacing ring 11 by means of set screws 13-13.”

On page 1, line 76 et seq., the specification says that the receiver head is:

“* * * the name given to the sound box diaphragm, coil, and upper pole piece, * * *.”

The upper pole piece here referred to is the stub or extension 12.

On page 1, line 64 et seq., it is further said, referring to the receiver head:

“The assembly is then *a unit* and can be placed on any magnetizing structure designed for it.”

On page 1, lines 74-5, it is said that the receiver head, including sound box, diaphragm, and coil, may be removed as *a unit* from the magnetizing structure.

On page 1, line 86 et seq., it is said that the magnet core is bored out to form a seat for the pole piece 12, and then follows this statement:

“It will be seen that the receiver head can be assembled as a unit apart from the magnetizing structure and can be placed on or removed from any magnetizing structure adapted to receive it.”

On page 2, beginning at line 12, it is said:

“* * * the inner pole piece is securely fastened to the spacing ring. Thus we have a unit assembly of sound box with its diaphragm and coil, outer pole piece and inner pole piece all in correct relation and ready to be mounted on the magnetizing structure.”

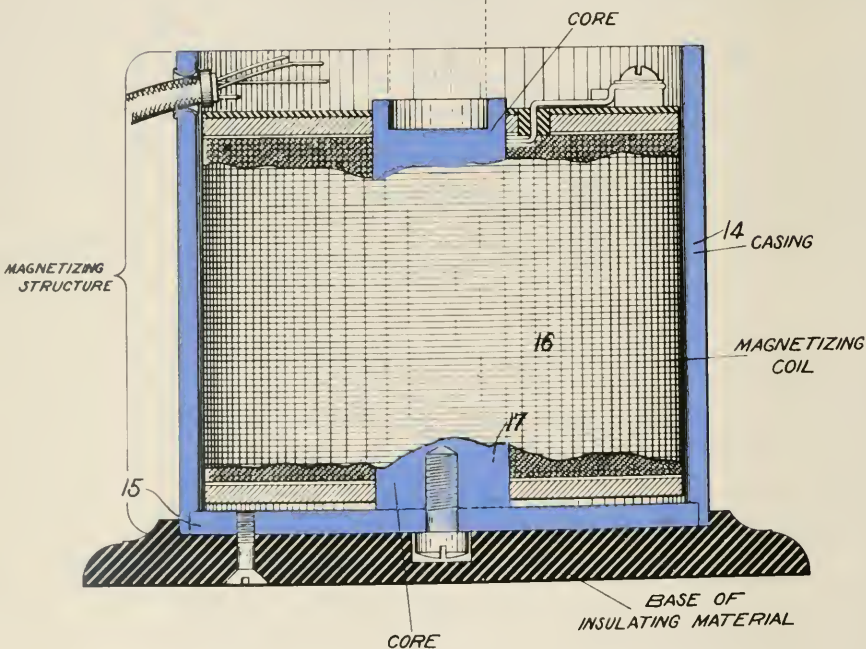
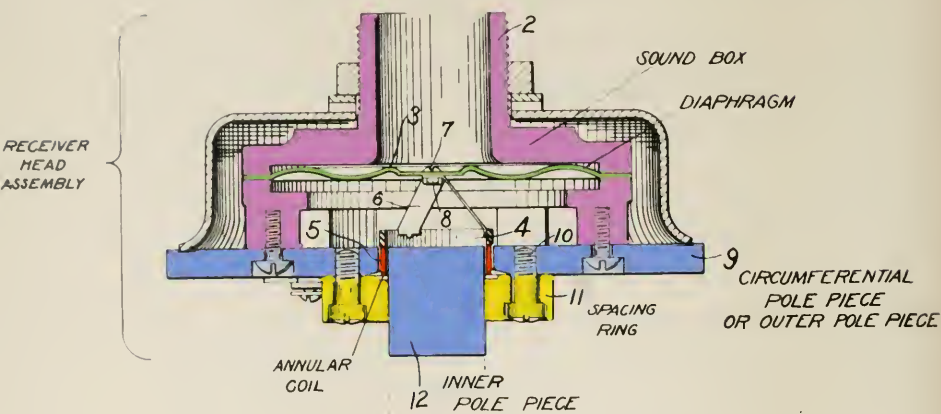
On page 2, beginning at line 29, it is said:

“We have also found it to be advantageous to construct the inner and outer pole as a unit with the sound box and movable coil so that they can be placed or removed as a unit on the magnetizing structure. In this way a receiver head or unit, as the assembly of inner and outer pole pieces with the sound box and movable coil is termed, can be fitted to any magnetizing structure (such as a permanent magnet or electro-magnet) for which it has been designed.”

On page 2, lines 41 et seq., it is said:


“The inner pole piece is rigidly held in fixed relation to the outer pole piece by means of the

STRUCTURE OF PATENT 1448279
 SHOWING RECEIVER HEAD ASSEMBLY DETACHABLE AS A UNIT
 IN ACCORDANCE WITH THE SPECIFICATION AND CLAIMS.




COLOR LEGEND

 Vibrating Coil

 Diaphragm

 Magnet

 Spacing Ring

 Sound Box

spacing ring 11. When this spacing ring has been fixed in proper relation to the outer pole piece, its inner diameter is such that the inner pole piece is held in proper relation to the outer pole piece and the air gap is fixed. The inner pole piece is held rigidly in the spacing ring by means of set screws."

And summarizing the situation, beginning on line 66, page 2, the specification says:

"The construction is such as to permit ease of assembling and adjusting and fixing the relation of the pole pieces to the movable coil. It permits of flexibility in manufacturing operations, as the receiver head and the magnetizing structure may be completed independently and then assembled to form the complete unit."

It will thus be seen that the Pridham and Jensen device is a two-unit structure. One unit is the *receiver head* and the other the *magnetizing structure*. The inner pole piece 12 is a part and parcel of the receiver head and goes with the receiver head when the receiver head is lifted from the magnetizing structure. Great advantages are claimed for this mode of procedure.

On the adjoining page is a drawing showing the two units separate and detached. We have simply lifted the receiver head from the magnetizing device.

The appellees' structure has no detachable inner pole piece 12 nor any equivalent thereof. Hence there is no infringement of claim 8.

If claim 8 can be sustained at all, it can only be by inclusion therein of the detachable inner pole

piece 12 as an element. In that respect the combination seems to be novel, as we have not found a detachable inner pole piece in the prior art. But, whether novel or not, we do not use it.

In this regard Pridham and Jensen seem to agree with our contention, for in an argument filed by them in the Patent Office relative to certain claims embodying the feature under consideration they said:

“Claims 1, 2, 3, 4, 5 and 6 specify a receiver head assembly which includes pole pieces to *detachably fit upon a magnetizing structure*. This affords a convenient method of assembling the device and is not shown in the patents of record. None of the references shows an assembly of the sound box and pole pieces *separable from the magnetizing structure*.” (Argument attached to Amendment A, Paper No. 3, filed Nov. 28, 1921, as appears in File Wrapper Contents, Deft's Ex. AA.)

CLAIM 8 OF PATENT NO. 1,448,279 LIMITED TO THE DETAILS OF CONSTRUCTION SHOWN AND DESCRIBED IN THE PATENT.

In the lower Court we contended that this claim was void for want of invention, relying upon the following decisions of this Court:

Ray v. Bunting, 4 Fed. (2d) 214;
Elliott v. Smith, 50 Fed. (2d) 816;
Day v. Doble, 42 Fed. (2d) 6.

As an alternative proposition, we argued further that even if the claim was not absolutely void, it was so limited and restricted by reason of the state of the

art that there could be no infringement, and in that behalf we relied upon

Kokomo v. Kitselman, 189 U. S. 8;

Hardison v. Brinkman, 156 Fed. 967;

Day v. Doble, 42 Fed. (2d) 6.

In deciding the case the judge of the trial Court adopted the alternative proposition *supra*. In other words, assuming the validity of the claim for the purposes of the argument, said claim is of such narrow and restricted scope that there could be no infringement. (R. p. 68.)

All we have to do in order to maintain that defense is to point out the prior art upon which we rely and the Court will see that the invention is not of a primary character, but merely an improvement and must be limited to the specific details shown, and as those specific details are not found in the appellees' structure, there is no infringement.

DETAILS OF CONSTRUCTION IN PRIDHAM AND JENSEN
PATENTS NOT FOUND IN APPELLEES' MACHINE.

It is thoroughly well settled that where an invention is a narrow one residing in details of construction, the claim must be limited to said details of construction shown and cannot be extended under the doctrine of mechanical equivalents to cover other details of construction not shown.

Perhaps as pat and pertinent a statement of the law as can be found is the language of this Court, through the late Judge Ross, in the case of *Eaid v. Twohy*, 230 Fed. 447:

“In view of the state of the art as disclosed by the foregoing patents, the contention that the McConnell patent is a pioneer one, and therefore entitled to the broad construction to which the latter are rightly entitled, does not, in our opinion, merit discussion. Being a mere improvement on the prior art, McConnell is only entitled to *the precise devices described and claimed* in his patent, and if the devices embodied in the Chandler patent can be differentiated, it is clear that the charge of infringement cannot be maintained. Such is the well-established law.” (Citing cases.)

This language is quoted and approved by this Court in the recent case of *International Harvester v. Killefer*, 67 Fed. (2d) 60.

Other decisions of this Court on the point are:

Simplex Window Co. v. Hauser, 248 Fed. 919 (926);

Stebler v. Porterville, 248 Fed. 927 (930);

Pacific States Electric Co. v. Wright, 277 Fed. 758;

Overlin v. Dallas, 297 Fed. 12;

Wilson v. Union Tool Co., 249 Fed. 734.

APPELLEES' BLUE BOOK SHOWING STATE OF THE ART.

For convenience of references we have prepared a pictorial digest of the prior art enclosed under a blue cover, and for that reason styled by us the “Blue Book.” We are handing in with this brief copies of the same for aiding the Court and saving labor. It

gives a birdseye view of the prior art in colors and saves the necessity of a detailed description.

This Blue Book shows that the sound box with its diaphragm was disclosed in the following:

U. S. patent to Alexander Graham Bell, No. 186,787 of 1877 (Deft's Ex. C; Blue Book p. 3);

British patent to Siemens, No. 4685 of 1877 (Deft's Ex. E; Blue Book p. 4);

U. S. patent to Cuttress and Redding, No. 242,816 of 1881 (Deft's Ex. F; Blue Book p. 5);

U. S. patent to Milliken, No. 262,811 of 1882 (Deft's Ex. H; Blue Book p. 7);

Fig. 5 of Electrician publication of 1899 (Deft's Ex. K; Blue Book p. 9);

French patent to Oliver, No. 404,286 of 1909 (Deft's Ex. Q; Blue Book p. 13);

U. S. patent to Johnson, No. 1,075,786 of 1913 (Deft's Ex. T; Blue Book p. 14, and Ex. KK, Blue Book p. 15).

The annular dynamic coil (voice coil) was shown in the following:

U. S. patent to Siemens, No. 149,797 of 1874 (Deft's Ex. D; Blue Book p. 2);

British patent to Siemens, No. 4685 of 1877 (Deft's Ex. E; Blue Book p. 4);

U. S. patent to Cuttriss and Redding, No. 242,816 of 1881 (Deft's Ex. F; Blue Book p. 5);

U. S. patent to Cuttriss and Milliken, No. 256,795 of 1882 (Deft's Ex. G; Blue Book p. 6);

U. S. patent to Milliken, No. 262,811 of 1882 (Deft's Ex. H; Blue Book p. 7);

- U. S. patent to Mather, No. 387,310 of 1888
(Deft's Ex. I; Blue Book p. 8);
- British patent to Lodge, No. 9712 of 1898 (Deft's
Ex. J);
- Fig. 5 of Electrician publication of 1899 (Deft's
Ex. K; Blue Book p. 9);
- U. S. patent to Pearson, No. 903,745 of 1908
(Deft's Ex. O; Blue Book p. 10);
- French patent to Oliver, No. 404,286 of 1909
(Deft's Ex. Q; Blue Book p. 13);
- U. S. patent to Pollak, No. 939,625 of 1909
(Deft's Ex. P; Blue Book p. 12);
- U. S. patent to Johnson, No. 1,075,786 of 1913
(Deft's Ex. T; Blue Book p. 14 and Ex. KK,
Blue Book p. 15).

Inner and outer pole pieces and devices for spacing the inner and outer pole pieces apart (a spacing ring) were shown in the following:

- U. S. patent to Milliken, No. 262,811 of 1882
(Deft's Ex. H; Blue Book p. 7);
- U. S. patent to Mather, No. 387,310 of 1888
(Deft's Ex. I; Blue Book p. 8);
- British patent to Lodge, No. 9712 of 1898 (Deft's
Ex. J);
- Fig. 5, Electrician publication of 1899 (Deft's
Ex. K; Blue Book p. 9);
- U. S. patent to Pearson, No. 903,745 of 1908
(Deft's Ex. O; Blue Book p. 10);
- U. S. patent to Pollak, No. 939,625 of 1909
(Deft's Ex. P; Blue Book p. 12).

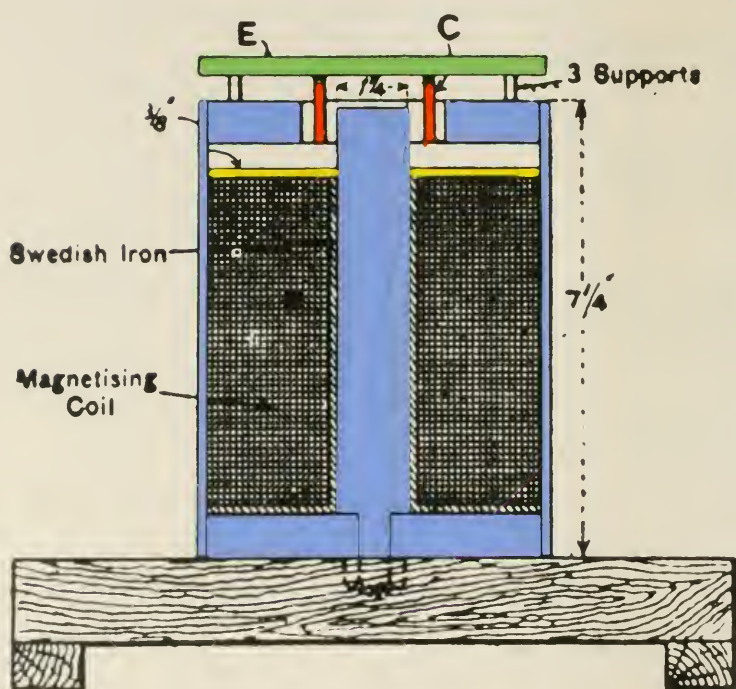
It will not be necessary to dwell in detail on all of the exhibits contained in the Blue Book. We be-

FIG. 5 LODGE PUBLICATIONS

ELECTRICIAN JAN. 6, 1899


ELECTRICAL ENGINEER MARCH 2, 1899


(ENLARGED & COLORED)




COLOR LEGEND

()
Vibrating
Coil

()
Diaphragm

()
Magnet

()
Spacing
Ring

()
Sound
Box

lieve the Court will understand them from a glance. Brief reference to a few of them, however, may not be amiss.

The Milliken Patent No. 262,811 of August 15, 1882 (Blue Book p. 7), is particularly important. In fact, it shows all of the elements of Pridham and Jensen. While there are differences in detail, yet they function generically in the same way and produce the same result. No discriminating mind, we contend, comparing it with Pridham and Jensen, can fail to come to this conclusion.

Milliken shows horse-shoe magnets, but in the patent itself he says that electro-magnets may be used, and Pridham and Jensen Patent No. 1,448,279 shows both kinds.

Another interesting exhibit is Sir Oliver Lodge's telephone shown in Fig. 5 of the Electrician publication (Blue Book p. 9), and in British Patent No. 9712 of 1898. This exhibit shows everything except a sound box. Instead of a sound box it shows a flat wooden sounding board, colored green in our illustration.

The purpose of Sir Oliver Lodge was to produce a loud-sounding telephone, one which dispensed with the conventional ear tubes and was audible over an extended area. That this object was successfully accomplished is abundantly shown by the deposition of Sir Oliver and that of his assistant, Mr. Robinson. (See deposition of Robinson, X.Q. 73 (R. bottom of p. 287); 82, 83, 84, 86, 87, 90, R. p. 289); also deposition of Lodge. (R. pp. 303, et seq.) In fact, the re-

production was so loud that Sir Oliver called the device a "bellowing telephone", and mentioned the fact that the ballad "Auld Lang Syne" was sung into the machine in one room and distinctly heard in the adjoining room. (Ans. to Q. 114, R. p. 325.)

Another exhibit worthy of mention is French patent to Oliver, No. 404,286, of November 27, 1909. (Blue Book p. 13.) It is entitled "vibrating coil telephone speaker", and is somewhat similar to Milliken No. 262,811 of August 15, 1882, already considered. (Blue Book p. 7.) It shows every element except a spacing ring; but as said spacing ring applied to a similar construction had been shown many years before in the patent to Milliken, the omission thereof from Oliver is of no moment. So far as concerns Pridham and Jensen's sound box and diaphragm, those things are clearly disclosed in Oliver as well as in many others, notably in the original Bell telephone patent itself, No. 186,787 of 1877. (Blue Book p. 3.)

We also venture to call attention to Siemens' British patent No. 4685 of 1877. (Blue Book p. 4.) This inventor was the original and first inventor of the circular vibrating coil operating in a circular magnetic gap. (See his patent No. 149,797 of 1874; Blue Book p. 2.)

His British patent above noted (4685) shows two forms of the application of his circular vibrating coil to a telephone. One form (Fig. 5) shows a telephone sound box with a flat diaphragm and vibrating coil mounted above the circular magnet poles and with the coil in the circular air gap. The second form

(Fig. 6) shows a similar construction, but instead of a flat diaphragm carrying the coil, it is carried by the truncated end of a small cone X made of parchment of trumpet form very similar to the modern cone type loud speaker.

In view of the foregoing, it is apparent that the Pridham and Jensen patents are of restricted scope and must be limited to the details of construction described and illustrated; or, as ruled by this Court in *Eaid v. Twohy*, 230 Fed. 447, "to the precise devices described and claimed," and as the devices embodied in appellees' structure "can be differentiated, it is clear that the charge of infringement cannot be maintained."

PRIDHAM AND JENSEN PATENT NO. 1,266,988.—CLAIM 8.

This patent was applied for July 3, 1916, and issued May 21, 1918. It has nine claims, but only claim 8 is charged to be infringed.

This invention is entitled "amplifying receiver," and is said to relate to those of the type shown in the prior Pridham and Jensen patent No. 1,051,113, January 21, 1913. Its object is said to be to *simplify and improve the construction and operation of such devices*.

Claim 8 under consideration reads as follows:

"8. In a receiver for telephony the combination with a sound box and its diaphragm, of a magnetic field, a vibrating conducting coil for the telephonic currents disposed in said field, and rigidly secured to the diaphragm and connec-

tions *between said coil and the operating circuit comprising thin metallic strips secured to the diaphragm.*”

Tabulating and separating the elements of this claim, they appear to be as follows:

1. A sound box and its diaphragm;
2. A magnetic field;
3. A vibrating conducting coil for the telephonic currents in said field, rigidly secured to the diaphragm;
4. Connections between said coil and the operating circuit *comprising thin metallic strips secured to the diaphragm.*

We here find our old acquaintances, sound box and diaphragm, already discussed in connection with patent No. 1,448,279. That argument applies with equal force to this claim and need not be repeated. We contend that our device has no sound box or equivalent thereof, and hence there is no infringement.

The third element specified as “the vibrating conducting coil for the telephonic currents” is of wedge shape, as shown by Figs. 3, 4 and 5 of the patent. It differs in form and mode of operation from the vibrating conducting coils shown in the prior art, and also from that shown in the appellees’ device.

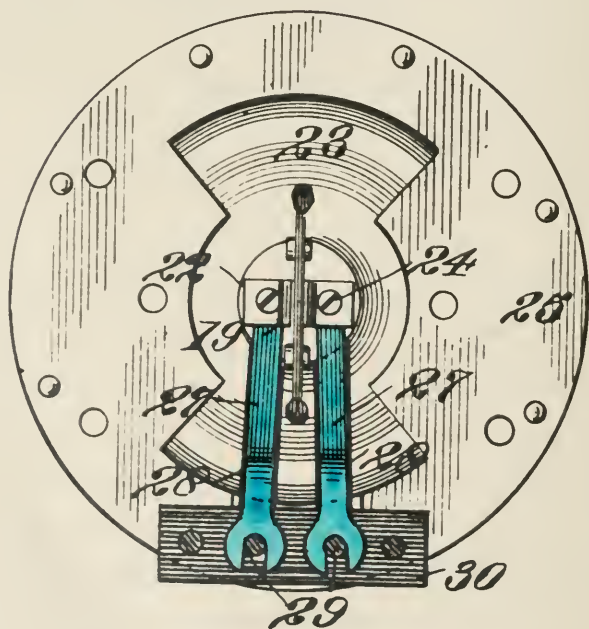
The vibrating coil shown in each of the prior patents disclosed in our Blue Book, with the exception of the Alexander Graham Bell patent No. 186,-787, consists of a circular wire coil operating in a

PRIDHAM ET AL PATENT
No. 1266988

FIG. 9.

SHOWING THIN METALLIC STRIPS LEADING ACROSS THE DIAPHRAGM TO THE EDGE THEREOF.

Fig. 9.



circular magnetic gap. This difference from the circular form and mode of operation thereof is fundamental, and for this reason alone it might be argued with force that there is no infringement. In other words, this claim 8 is limited to the wedge-shaped vibrating coil illustrated in the patent. However, it is not necessary to go to that extent, as there are other considerations which negative infringement.

The dominant and essential element of this claim 8 is specified as "*connections between said coil and the operating circuit comprising thin metallic strips secured to the diaphragm.*"

On the adjoining page is a reproduction of Fig. 9 of the patent. The thin metallic strips are designated by the number 27 and they have been colored green for greater clarity. They are nothing more than thin, flat, metallic ribbons provided with bifurcations at their outer ends to hook on to a binding post of the operating circuit and thus complete the connection between that circuit and the voice coil. They are described in the specification (p. 2, lines 18 and 46) as follows:

"The metallic connections between the coil 13 and the transmission line are such as to prevent interference with the free vibration of the diaphragm and coil and to obviate any danger of the connection becoming broken on account of the necessary vibrations which take place. One end of the coil is connected to one of the posts 21 and the opposite end of the coil is connected to the post 20. *Thin metallic strips 27* are glued to the diaphragm with shellac or other suitable

substance and insulating material 28 in addition to the shellac may be laid between the metallic strips and the diaphragm. The said strips 27 are secured at their inner ends to the fasteners 24 on the diaphragm and extend radially outward to the periphery of the diaphragm where they are projected downwardly and attached to binding posts 29 secured to an insulating block 30 on the sound box. The brackets or clips 19 in the form shown in Fig. 3, may serve as conductors between the metallic strips 27 and the coil, or separate wire connections 31 may be made between these parts, as shown in Fig. 4, in which case the bifurcation on the end of one of the brackets may be dispensed with and both brackets made identical and secured in place by the centrally positioned screw 20."

Also we quote from page 2, lines 75 to 84, as follows:

"By securing the *thin, metallic conducting strips* to the diaphragm, we overcome the difficulty presented in attaching a conductor to a vibratory member. The movement of the diaphragm at or near its periphery is obviously slight and therefore by fastening the conducting strips to the diaphragm at this point, there will be a minimum of bending action on the strips, with a consequent lessening of the danger of breakage."

Appellees use no such device nor any equivalent thereof. Their device consists of round telephone wire connections such as were used in the telephone art for many years previously. According to the

testimony, Pridham and Jensen first used the old round wires of the prior art in that connection, but finding them easily breakable, abandoned the same and substituted the *thin, metallic strips* 27 of their patent drawing. In this connection their contribution to the art consisted solely of such substitution. The appellees do not use any such device, but adhere to the old conventional round wires of the prior art. In fine, appellees use what Pridham and Jensen abandoned.

A patentee is bound by the language of his claims, and when the language is clear and specific, he cannot, on the theory of equivalency, include something not within that language. To do so would be to change the claim, which, of course, cannot be done.

In *White v. Dunbar*, 119 U. S. 51-52, the Court said:

“Some persons seem to suppose that a claim in a patent is like a nose of wax which may be turned and twisted in any direction, by merely referring to the specification, so as to make it include something more than, or something different from, what its words express. * * * The claim is a statutory requirement, prescribed for the very purpose of making the patentee *define precisely what his invention is*; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner *different from the plain import of its terms*. This has been so often expressed in the opinions of this court that it is unnecessary to pursue the subject further. See *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U. S. 274, 278; *James v. Campbell*, 104 U. S. 356, 370.”

In *Keystone Bridge Co. v. Phoenix Iron Co.*, 95 U. S. 274, the invention consisted of iron bars used in bridge construction and the claim called for *wide, thin, iron bars*. (p. 277.) The defendant had used *round or cylindrical bars*. It was held that there was no infringement. In fine, round, cylindrical bars were not the equivalents of wide, thin bars. The Court said at page 278:

“When the terms of a claim in a patent are clear and distinct (as they always should be), the patentee, in a suit brought upon the patent, is bound by it. * * * He can claim nothing beyond it.”

This *Keystone Bridge* case was subsequently discussed and affirmed by the Supreme Court in *McClain v. Ortmyer*, 141 U. S. 424, where, among other things, it is said:

“The object of the patent law in requiring the patentee to ‘particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery,’ is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them. The claim is the measure of his right to relief, and while the specification may be referred to to limit the claim, it can never be made available to expand it. Thus in *Keystone Bridge Company v. Phoenix Iron Company*, 95 U. S. 274, 278, the manufacture of round bars, flattened and drilled at the eye, for use in the lower chords of iron bridges, was held not to be an infringement of a patent for an improvement in such bridges where the claim in the specification described the patented invention as

consisting in the use of wide and thin drilled eye bars applied on edge. In delivering the opinion of the Court, Mr. Justice Bradley observed: 'It is plain, therefore, that the defendant company, which does not make said bars at all,' (that is, wide and thin bars,) 'but round or cylindrical bars, does not infringe this claim of the patent. When a claim is so explicit, the courts cannot alter or enlarge it. If the patentees have not claimed the whole of their invention, and the omission has been the result of inadvertence, they should have sought to correct the error by a surrender of their patent and an application for a reissue * * *. But the courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office, or the appellate tribunal to which contested applications are referred. When the terms of a claim in a patent are clear and distinct (as they always should be), the patentee, in a suit brought upon the patent, is bound by it * * *. He can claim nothing beyond it.' "

The Supreme Court also referred to the *Keystone* case in *Coupe v. Royer*, 155 U. S. 576, and reiterated the rule of law contended for by us.

This Court has followed the rule of law laid down by the Supreme Court in the cases cited.

Thus in *Wilson & Willard v. Union Tool Co.*, 249 Fed. 729, it was said:

"* * * that the patentee is limited to his claims, and the patent is no broader than the claims, and, if the language of the claims of the patent is clear and distinct, the patentee is bound by the language he has employed."

And to the same effect is *Hardison v. Brinkman*, 156 Fed. 962, 967, where this Court said:

“It is not necessary to inquire whether Hardison by his claims unnecessarily limited his invention, or whether he might have so worded the same as to cover the combination which was adopted by the appellee. He must be held to the combination which is described and claimed so explicitly.”

Under the authorities cited, it seems clear to us that if the round, cylindrical bars of the *Keystone* case, *supra*, were not the equivalents of the wide, thin bars, then it must follow by parity of reasoning that the round, cylindrical wires of appellees are not the equivalents of the thin, metallic strips of Pridham and Jensen, and hence the charge of infringement fails.

AS TO VALIDITY OF CLAIM 8 OF PATENT NO. 1,266,988.

While the question of validity is not strictly in issue, nevertheless it may be considered as affecting the scope of the claim.

This claim slipped through the Patent Office in the form in which it was originally presented, without a single reference, yet the prior art was rich in references which might have been cited if the Patent Examiner had taken the trouble to look for them.

As early as 1877, forty-five years ago, Siemens took out British patent 4685 (Deft's Ex. E), in which he provided for *electric connections between the voice*

coil and the operating circuit, but did not describe any specific form of connections. (Siemens Specification, p. 3, lines 32-35.) This was the generic idea, and, of course, he could use any form of electric connections he saw fit. All subsequent inventors used that broad idea, some using one form and some using other forms.

British patent to *Edison, 2909 of 1877* (Deft's Ex. V) shows substantially the thin, metallic strips of Pridham and Jensen extending over a diaphragm, and calls the device "a thin strip of platina or similar material." Surely this is responsive to the term "thin metallic strips."

In his subsequent U. S. patent 203,015 of 1878 (Deft's Ex. W), Mr. Edison shows the same device in Fig. 1.

Rogers patent 297,168, of 1884 (Deft's Ex. X), shows the same device and calls it "strips of metal foil."

Richards patent 521,220, of 1894 (Deft's Ex. Y), shows the same device and calls it "any metal strip or ribbon."

Shreeve patent 602,174, of 1898 (Deft's Ex. Z), shows the same device and calls it "a ribbon or strip of metal foil or similar light conductor."

In view of the foregoing it is difficult to understand on what theory claim 8 was allowed except on that of carelessness and inadvertence. But considering those references, they certainly have the effect of narrowing the scope of the claim, if they do not actually invalidate it.

CONCLUSION.

We do not care to make any extensive comment on appellant's brief. If we are right in the application of the law to the facts of this case, as we have shown in the preceding sections of this brief, there is no need to burden the Court with a categorical reply.

The impression one gathers from reading appellant's brief is that Pridham and Jensen invented the modern loud speaker used in conjunction with present-day radio receiving sets. In places, the brief seems to argue that the two patents in suit cover generically the so-called "dynamic" or "moving coil" loud speakers used in radio reception, as distinguished from the former "magnetic" type of speaker. Pridham and Jensen made no such invention, and the impression created is entirely false.

The two patents in suit relate to *telephones* and not radios. The modern radio art developed entirely independent of any alleged contributions by Pridham and Jensen. That the Magnavox Company, in later years, was enabled to sell loud speakers was in no measure due to the Pridham and Jensen experiments with telephones nor to the patents in suit. It was the popularity of the radio itself that sold loud speakers. Pridham and Jensen were content with testing out telephone receivers in the Napa Valley and elsewhere, while others devoted their time to modernizing wireless telegraphy.

Nor were Pridham and Jensen the inventors of the so-called "dynamic" loud speaker, notwithstanding the favorable atmosphere which appellant's brief seeks

to create. The "dynamic" or "moving coil" speaker did not originate with them.

Their invention in patent No. 1,266,988, if any, is limited to "thin metallic strips" glued to the diaphragm, as set forth in said patent, so as to obviate the danger of the connection being broken on account of the vibrations which take place. This is merely a *detail of construction* which defendants do not utilize, and is a far cry from designing the up-to-date vibrating cone type radio loud speakers which we all are acquainted with in our living rooms.

The apparent new thing in the second patent No. 1,448,279 is a construction which can be easily assembled and shipped. The inner and outer poles of the magnet are a unit with the sound box, diaphragm and movable coil so that this receiver head unit can be fitted to any magnetizing structure. Suitable construction for convenient assembling seems to be the object sought to be attained, *a mere mechanical detail*.

In both patents the conception is limited to apparatus which includes a sound box enclosing a diaphragm, with provision for a horn attachment, adapted for use as a telephone receiver. Radio reception is nowhere mentioned nor remotely suggested.

We cannot fail to note the three essential requirements of a successful loud speaker, elaborated in appellant's brief at page 57. These essentials are said to be:

1. Magnetic requirements,
2. Acoustical requirements,
3. Mechanical requirements.

The inference is that these requirements were all recognized by Pridham and Jensen, and the problems involved were, indeed, solved by their invention. But we look through the two patents in vain for any mention of these requirements, much less recognition of essentials for our present-day radio receiving sets.

While Pridham and Jensen were tinkering with the old type sound box and enclosed diaphragm used by them as amplifying receivers for telephonic currents, the present almost universal cone-type loud speaker was born. Being opportunists, they now seek credit for all this recent radio development—something they neither invented nor patented.

As if to bolster up the extravagant assertions of appellant regarding the scope and value of the invention, it is said at page 70 of the brief that Magnavox Company has sold approximately one and one-half millions of the loud speakers covered by the patents in suit, these devices having a value of approximately fourteen million dollars.

This is erroneous and misleading, for it clearly appears from the record that of the total number of dynamic loud speakers sold by Magnavox, one million three hundred and seventy thousand (1,370,000) were of the vibrating free air cone construction shown in the Kellogg patent 1,707,617, which Magnavox adopted as its commercial device after abandoning its own.

We feel confident that this Court will not be misled by the elaborate and excessive statements made in appellant's brief, but will carefully scrutinize the patents themselves and especially the *two specific nar-*

row and detailed claims here in suit. These claims are scarcely mentioned in the brief. They show how limited is appellant's alleged invention.

It is respectfully submitted that the trial judge was correct in his conclusions and that the decree of dismissal herein should be affirmed with costs to appellee.

Dated, San Francisco,

March 14, 1934.

JOHN H. MILLER,

A. W. BOYKEN,

Attorneys for Appellees.

